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CLAIMS

1. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate, so as to form a modified region due to multiphoton absorption at least within the substrate, and causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light incident face of the object.

2. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less, so as to form a modified region including a crack region at least within the substrate, and causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a

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laser light incident face of the object.

3. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less, so as to form a modified region including a molten processed region at least within the substrate, and causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light incident face of the object.

4. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 ns or less, so as to form a modified region including a refractive index change region which is a region with a changed refractive index at least within the substrate, and

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causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light incident face of the object.

5 5. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within
10 the substrate, so as to form a modified region at least within the substrate, and causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light
15 incident face of the object.

 6. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate and a laminate part disposed on a front face of the substrate with laser light while
20 positioning a light-converging point within the substrate, irradiating the object with laser light while positioning a light-converging point within the laminate part, so as to form respective modified regions within the substrate and laminate part, and
25 causing the modified regions to form a starting point region for cutting along a line along which the object

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should be cut in the object inside by a predetermined distance from a laser light incident face of the object.

7. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate, so as to form a modified region along a line along which the object should be cut at least within the substrate, thereby cutting the object.

8. A laser processing method according to one of claims 5 to 7, wherein the modified region includes at least one of a crack region which is a region where a crack is generated within the substrate, a molten processed region which is a region subjected to melting within the substrate, and a refractive index change region which is a region with a changed refractive index within the substrate.

9. A laser processing method according to one of claims 1 to 7, wherein the laser light irradiating the substrate while positioning the light-converging point therewithin irradiates the substrate from the rear face thereof.

10. A laser processing method comprising the steps of:

irradiating a substrate with laser light while

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positioning a light-converging point within the substrate, so as to form a modified region due to multiphoton absorption within the substrate, and causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light incident face of the substrate; and

providing a front face of the substrate with a laminate part after the step of forming the starting point region for cutting.

11. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate which is made of a semiconductor material and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 ps or less, so as to form a modified region at least within the substrate, and causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light incident face of the object.

12. A laser processing method comprising the

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step of irradiating an object to be processed comprising a substrate which is made of a piezoelectric material and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less, so as to form a modified region at least within the substrate, and causing the modified region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light incident face of the object.

13. A laser processing method comprising the step of irradiating an object to be processed comprising a substrate which is made of a semiconductor material and a laminate part disposed on a front face of the substrate with laser light while positioning a light-converging point at least within the substrate, so as to form a molten processed region at least within the substrate, and causing the molten processed region to form a starting point region for cutting along a line along which the object should be cut in the object inside by a predetermined distance from a laser light incident face of the object.